

# Executive Summary

Small community wastewater treatment plants have considerable difficulties complying with the regulatory requirements of the Clean Water Act. Fortunately, the United States Environmental Protection Agency's Office of Wastewater Management sponsors an innovative technical assistance program. The national "Operator Training Program" is designed to help smaller communities struggling to provide effective wastewater treatment. The program thereby improves surface water quality and protects public health.

The Operator Training Program provides on-site technical assistance at no cost to small communities experiencing difficulties complying with their wastewater discharge permits. Authorized under section 104(g)(1) of the Clean Water Act (CWA), the Operator Training Program provides on-site operator training, financial management, troubleshooting, and other operations and maintenance assistance designed to address the chronic problems of non-compliance which trouble many small, publicly-owned wastewater treatment plants. Assistance provided by the Operator Training Program was effective in 93 percent of projects, according to program data for the 988 facilities served in FY99.

The need for improved compliance and assistance for small systems has been documented extensively by General Accounting Office reports, EPA's Clean Water Needs Survey, and other sources. Compliance problems are caused primarily by poor opera-

tor understanding and application of treatment process control. These difficulties often are aggravated by capital improvement needs.

Of the more than 12,500 wastewater treatment plants in the United States which discharge less than 1 million gallons per day, many currently use, or are preparing to upgrade to, sophisticated advanced treatment technologies. These technologies require operating skills that many operators of smaller plants have been unable to acquire. As the number of systems using advanced treatment steadily grows, so does the need for operator training. The Operator Training Program is uniquely designed to meet this need.

Federal funding of the Operator Training Program enables experts all over the country to provide free technical assistance to public



*Wastewater treatment plants discharge effluent to the nation's recreational waters, like those at this site near Smoke Hole, West Virginia. In many cases, these waters ultimately become the drinking water supply for millions of customers.*

facilities. Funding is provided as grants to state environmental agencies or to training centers housed at local colleges and universities.

About 40 percent of the time, systems in need of assistance are referred to the program by regulatory agencies. A trainer then works with the community, plant operators, and local officials to evaluate the facility's problems and to develop a remedial training plan. Plant operators receive assistance in areas such as process control, maintenance management, laboratory analysis and reporting, sludge treatment and disposal, financial management, safety, energy conservation, and right-to-know compliance.

Almost 550 small wastewater plants nationwide currently are receiving assistance under the Operator Training Program. In a recent EPA national "customer service" survey of communities served by the program, more than 95 percent of respondents indicated that the assistance provided through the program was helpful and that they would recommend this type of assistance to another facility. Furthermore, 92 percent agreed that the skills of their staff were enhanced as a result of the technical assistance provided by the program. Finally, more than 70 percent of respondents stated that the technical assistance program helped them return to compliance.

Since 1982, the Operator Training Program has provided a valuable service, at no cost to communities and at low cost to the federal government. With average federal funding of less than \$2 million per year, the program has carried out approximately 6,000 assistance projects throughout the country, almost exclusively in rural or non-metropolitan areas. Data published in EPA's FY99 104(g)(1) Program Report show that operator outreach training is being provided nationally at an average federal cost of only \$1,816 per project.

Most states receiving federal funding for the program are able to leverage funding from state and local resources to meet the federal matching requirement of 25 percent cash or in-kind contribution. More importantly, many state governments are so impressed by the program that they contribute substantial funding to provide for expanded operator outreach and training. For example, Pennsylvania, Maryland, and Ohio each adds more than \$100,000 annually for on-site technical assistance.

However, the success of state and local fundraising appears to be highly dependent upon the availability of federal funds. Forty-one percent of the 48 grant recipients responding to the 1999 Program Evaluation Survey indicated that if federal program funds were eliminated, they would be unable to deliver on-site technical assistance to wastewater treatment plants. Another 50 percent of respondents indicated that if federal funding were lost they would be forced to reduce the number of systems helped, the length of time invested at each system, the number of staff employed, and/or the number of services offered. Most grantees designated insufficient operating budgets as the primary factor limiting their outreach efforts.

The Operator Training Program targets assistance to smaller communities that are severely challenged by their wastewater discharge permit requirements, limited financial resources, and often deteriorating infrastructure. In most cases these communities cannot afford engineering assistance or staff training and have been unable to plan effectively for their communities' future treatment needs. The Operator Training Program provides urgently needed assistance that improves compliance, while protecting the environment and public health.

### Summary of Program Evaluation Findings

- 58 percent of 104(g)(1) grantees are state agencies, and 42 percent of 104(g)(1) grantees are environmental training centers at non-state agencies.
- Each of the 48 grantees receives federal 104(g)(1) funding of approximately \$25–50K per year.
- ★ If 104(g)(1) funding were lost, 41 percent of respondents said that they would be forced to eliminate technical assistance for WWTPs (77 percent of these were environmental training centers at colleges, universities, and non-profit organizations).
- If 104(g)(1) funding were increased, grantees said that they would expand services, increase the number of systems assisted, increase the length of time invested on projects, and increase staff (in that order of priority). Some noted that staffing increases were a low priority choice because of uncertainty of continuation of funding.
- 104(g)(1) programs in each state make heavy use of part-time staff and consultants.
- Most referrals for technical assistance come from state regulatory or other agencies (41 percent) or from plant operators or managers (37 percent). Contacts made during classroom training are another key source of referrals.
- The top reasons for assistance are non-compliance, high risk for non-compliance, and inexperienced operators.
- The top five factors that limit proper performance at small WWTPs are poor understanding and application of process control by operators (first choice of 76 percent of survey respondents), inflow and infiltration, staffing problems, difficulties with solids handling and sludge disposal, and operability/maintainability considerations.
- The state 104(g)(1) programs are limited primarily by insufficient operating budgets, inadequate staffing, travel considerations, and insufficient support for operators by local officials and managers.
- ★ Key program successes were identified as improved system compliance and, therefore, improved environmental protection, enhancement of operator professionalism, and financial savings or other direct economic benefits for communities.
- Key reasons for program success were identified as commitment to long-term and comprehensive on-site assistance and technical assistance by professionals with plant operating experience (peer group assistance).

*The program evaluation survey is included in the Appendix.*

### Typical Assistance Provided by the 104(g)(1) Training Program

- Improve treatment efficiencies at municipal plants
- Evaluate the effectiveness of overall plant operation
- Refine process control strategies for the treatment plant
- Aid in start-up procedures at treatment facilities
- Devise process control standard operating procedures
- Provide sampling and lab training for WWTP personnel
- Develop manual and computerized maintenance management programs
- Assist in the development of QA/QC plans
- Evaluate recordkeeping programs
- Evaluate overall operation and maintenance program
- Evaluate biosolids disposal and handling program
- Train plant personnel on preventive maintenance program
- Train personnel to evaluate and modify plant equipment and performance standards
- Evaluate the effectiveness of pollutant removal from the plant wastestream
- Help standardize lab bench sheets for plant personnel
- Assist in the selection, set-up, and implementation of laboratory equipment
- Train personnel on chlorination/dechlorination and other disinfection technologies
- Evaluate and train personnel on safety practices
- Analyze outfall alternatives
- Provide low-cost treatment alternatives
- Evaluate collection systems and lift stations
- Provide training on wet weather flows and collection system maintenance
- Evaluate monitoring programs and provide training for effective sampling
- Assist in the formulation of corrective action plans
- Assist in the formulation of toxicity reduction evaluations

